I. AMENDMENTS TO THE CLAIMS

Please find below a complete listing of the claims in the application, including their status as effected by the present amendment:

Listing of Claims:

1. (CURRENTLY AMENDED) A method for segmenting a <u>fetal</u> heart rate signal to identify heart rate feature events, said method comprising:

    a) receiving a <u>fetal</u> heart rate signal including a sequence of sample points;

    b) processing said <u>fetal</u> heart rate signal to generate a set of segments, each segment corresponding to a respective portion of said <u>fetal</u> heart rate signal identified as being enclosable in a respective bounded area commencing at a start sample point of said <u>fetal</u> heart rate signal and terminating at an end sample point of said <u>fetal</u> heart rate signal, the sample points between said start sample point and end sample point lying within said bounded area, wherein the bounded area for each segment has a respective length determined on a basis of at least one characteristic of the respective portion of said <u>fetal</u> heart rate signal;

    c) processing said <u>fetal</u> heart rate signal together with said set of segments to:

    -   identify a plurality of distinct sections of said <u>fetal</u> heart rate signal<u>; and</u>

    -   <u>associate sections in the plurality of distinct sections with respective labels, at least some of the labels conveying</u> ~~each section being associated with a respective~~ heart rate <u>features</u> ~~feature~~;

    d) releasing a signal indicative of said plurality of sections of said <u>fetal</u> heart rate signal.

2. (CURRENTLY AMENDED) A method as defined in claim 1, wherein the heart rate <u>features are</u> ~~feature is~~ selected from the set consisting of an acceleration event, a deceleration event and a baseline event.

3. (ORIGINAL) A method as defined in claim 1, wherein said bounded area is a trapezoid.

4. (ORIGINAL) A method as defined in claim 3, wherein said trapezoid is a parallelogram.

5. (ORIGINAL) A method as defined in claim 4, wherein for each segment, a polynomial approximation of the sample points between said start sample point and end sample point lies within the corresponding bounded area.

6. (ORIGINAL) A method as defined in claim 5, wherein said polynomial approximation of the sample points between said start sample point and end sample point is a line of best fit.

7. (CURRENTLY AMENDED) A method as defined in claim 3, wherein a trapezoid associated with a given segment of said fetal heart rate signal has a height conditioned at least in part on the basis of the variability of at least part of said heart rate signal.

8. (CURRENTLY AMENDED) A method as defined in claim 7, wherein the at least part of said fetal heart rate signal is the portion of the fetal heart rate signal enclosed within said trapezoid.

9. (PREVIOUSLY PRESENTED] A method as defined in claim 1, wherein said bounded area is characterized by a certain drift and a certain excursion.

10. (CURRENTLY AMENDED) A method as defined in claim 9, wherein the certain excursion is conditioned at least in part on the basis of the fetal heart rate signal.

11. (CURRENTLY AMENDED) A method as defined in claim 10, wherein the certain excursion is conditioned at least in part on the basis of a variability associated with the fetal heart rate signal.

12. (CURRENTLY AMENDED) A method as defined in claim 1, wherein said signal indicative of said plurality of sections of said fetal heart rate signal includes a list of labeled sections including a plurality of data elements, each data element being associated with a respective section of said fetal heart rate signal and including a label component, the label component being indicative of one of an acceleration event, a deceleration event and a baseline event.

13. (PREVIOUSLY PRESENTED] A method as defined in claim 1, wherein said set of segments is generated using a recursive process.

14. (CURRENTLY AMENDED) A method as defined in claim 13, wherein said recursive process includes:

   a) forming a segment of said set of segments by enclosing a portion of said fetal heart rate signal in a bounded area, thereby leaving at least one remaining portion of said fetal heart rate signal, said at least one remaining portion of said fetal heart rate signal including sample points of said fetal heart rate signal excluded from the enclosed portion;

   b) repeating a) recursively for said at least one remaining portion of said fetal heart rate signal until a certain condition is met.

15. (CURRENTLY AMENDED] A method as defined in 14, wherein the certain condition is met when said at least one remaining portion of said fetal heart rate signal has a number of sample points below a pre-determined threshold number of sample points.

16. (CANCELLED)

17. (CURRENTLY AMENDED) An apparatus for segmenting a fetal heart rate signal to identify heart rate feature events, said apparatus comprising:

   a) an input for receiving a fetal heart rate signal including a sequence of sample points;

   b) a first processing unit coupled to said input, said first processing unit being adapted for processing said fetal heart rate signal to generate a set of segments, each segment corresponding to a respective portion of said fetal heart rate signal identified as being enclosable in a respective bounded area commencing at a start sample point of said fetal heart rate signal and terminating at an end sample point of said fetal heart rate signal, the sample points between said start sample point and end sample point lying within said bounded area, wherein the bounded area for each segment has a respective length determined on a basis of at least one characteristic of the respective portion of said fetal heart rate signal;

c) a second processing unit coupled to said first processing unit, said second processing unit being adapted for processing said <u>fetal</u> heart rate signal together with said set of segments to:

     –   identify a plurality of distinct sections of said <u>fetal</u> heart rate signal<u>; and</u>

     –   <u>associated sections in the plurality of distinct sections with respective labels, at least some of the labels conveying heart rate features,</u> ~~each section being associated with a respective heart rate feature~~;

d) an output for releasing a signal indicative of said plurality of sections of said <u>fetal</u> heart rate signal.

18. (CURRENTLY AMENDED) An apparatus as defined in claim 17, wherein the heart rate <u>features are</u> ~~feature is~~ selected from the set consisting of an acceleration event, a deceleration event and a baseline event.

19. (ORIGINAL) An apparatus as defined in claim 17, wherein said bounded area is a trapezoid.

20. (ORIGINAL] An apparatus as defined in claim 19, wherein said trapezoid is a parallelogram.

21. (ORIGINAL) An apparatus as defined in claim 20, wherein for each segment, a polynomial approximation of the sample points between said start sample point and end sample point lies within the corresponding bounded area.

22. (ORIGINAL) An apparatus as defined in claim 21, wherein said polynomial approximation of the sample points between said start sample point and end sample point is a line of best fit.

23. (CURRENTLY AMENDED) An apparatus as defined in claim 19, wherein a trapezoid associated with a given segment of said <u>fetal</u> heart rate signal has a height conditioned at least in part on the basis of the variability of at least part of said <u>fetal</u> heart rate signal.

24. (CURRENTLY AMENDED) An apparatus as defined in claim 23, wherein the at least part of said <u>fetal</u> heart rate signal is the portion of the <u>fetal</u> heart rate signal enclosed within said trapezoid.

25. (PREVIOUSLY PRESENTED) An apparatus as defined in claim 17, wherein said bounded area is characterized by a certain drift and a certain excursion.

26. (CURRENTLY AMENDED) An apparatus as defined in claim 25, wherein the certain excursion is conditioned at least in part on the basis of the fetal heart rate signal.

27. (CURRENTLY AMENDED) An apparatus as defined in claim 26, wherein the certain excursion is conditioned at least in part on the basis of a variability associated with the fetal heart rate signal.

28. (CURRENTLY AMENDED) An apparatus as defined in claim 17, wherein said signal indicative of said plurality of sections of said fetal heart rate signal includes a plurality of data elements, each data element being associated with a respective section of said fetal heart rate signal and including a label component, the label component being indicative of one of an acceleration event, a deceleration event and a baseline event.

29. (PREVIOUSLY PRESENTED) An apparatus as defined in claim 17, wherein said first processing unit implements a recursive process for generating said set of segments.

30. (CURRENTLY AMENDED) An apparatus as defined in claim 29, wherein said recursive process includes:
   a) forming a segment of said set of segment by enclosing a portion of said fetal heart rate signal in a bounded area, thereby leaving at least one remaining portion of said fetal heart rate signal, said at least one remaining portion of said fetal heart rate signal including sample points of said fetal heart rate signal excluded from the enclosed portion;
   b) repeating a) recursively for said at least one remaining portion of said fetal heart rate signal until a certain condition is met.

31. (CURRENTLY AMENDED) An apparatus as defined in claim 30, wherein the certain condition is met when said at least one remaining portion of said fetal heart rate signal has a number of sample points below a pre-determined threshold number of sample points.

32. (CANCELLED)

33. (CURRENTLY AMENDED) A computer readable storage medium including a program element suitable for execution by a computing apparatus for segmenting a fetal heart rate signal to identify heart rate feature events, said computing apparatus comprising:

a) a memory unit;

b) a processor operatively connected to said memory unit, said program element when executing on said processor being operative for:

    i.   receiving a fetal heart rate signal including a sequence of sample points;

    ii. processing said fetal heart rate signal to generate a set of segments, each segment corresponding to a respective portion of said fetal heart rate signal identified as being enclosable in a respective bounded area commencing at a start sample point of said fetal heart rate signal and terminating at an end sample point of said fetal heart rate signal, the sample points between said start sample point and end sample point lying within said bounded area, wherein the bounded area for each segment has a respective length determined on a basis of at least one characteristic of the respective portion of said fetal heart rate signal;

    iii. processing said fetal heart rate signal together with said set of segments to identify a plurality of distinct sections of said fetal heart rate signal;

    iv. associating sections in the plurality of distinct sections with respective labels, at least some of the labels conveying ~~each section being associated with a respective~~ heart rate ~~feature~~ features;

    v. releasing a signal indicative of said plurality of sections of said fetal heart rate signal.

34. (CURRENTLY AMENDED) A computer readable storage medium as defined in claim 33, wherein the heart rate features are ~~feature is~~ selected from the set consisting of an acceleration event, a deceleration event and a baseline event

35. (ORIGINAL) A computer readable storage medium as defined in claim 33, wherein said bounded area is a trapezoid.

36. (ORIGINAL) A computer readable storage medium as defined in claim 35, wherein said trapezoid is a parallelogram.

37. (ORIGINAL) A computer readable storage medium as defined in claim 36, wherein for each segment, a polynomial approximation of the sample points between said start sample point and end sample point lies within the corresponding bounded area.

38. (ORIGINAL) A computer readable storage medium as defined in claim 37, wherein said polynomial approximation of the sample points between said start sample point and end sample point is a line of best fit.

39. (CURRENTLY AMENDED) A computer readable storage medium as defined in claim 35, wherein a trapezoid associated with a given segment of said fetal heart rate signal has a height conditioned at least in part on the basis of the variability of at least part of said fetal heart rate signal.

40. (CURRENTLY AMENDED) A computer readable storage medium as defined in claim 39, wherein the at least part of said fetal heart rate signal is the portion of the fetal heart rate signal enclosed within said trapezoid.

41. (ORIGINAL) A computer readable storage medium as defined in claim 34, wherein the bounded area is characterized by a certain drift and a certain excursion.

42. (CURRENTLY AMENDED) A computer readable storage medium as defined in claim 41, wherein the certain excursion is conditioned at least in part on the basis of the fetal heart rate signal.

43. (CURRENTLY AMENDED) A computer readable storage medium as defined in claim 42, wherein the certain excursion is conditioned at least in part on the basis of a variability associated with the fetal heart rate signal.

44. (CURRENTLY AMENDED) A computer readable storage medium as defined in claim 35, wherein said signal indicative of said plurality of sections of said fetal heart rate signal includes a plurality of data elements, each data element being associated with a respective section of said fetal heart rate signal and including a label component, the label component being indicative of one of an acceleration event, a deceleration event and a baseline event.

45. (PREVIOUSLY PRESENTED) A computer readable storage medium as defined in claim 33, wherein said program element implements a recursive process for generating the set of segments.

46. (CURRENTLY AMENDED) A computer readable storage medium as defined in claim 45, wherein said recursive process includes:

a) forming a segment of said set of segment by enclosing a portion of said fetal heart rate signal in a bounded area, thereby leaving at least one remaining portion of said fetal heart rate signal, said at least one remaining portion of said fetal heart rate signal including sample points of said fetal heart rate signal excluded from the enclosed portion;

b) repeating a) recursively for said at least one remaining portion of said fetal heart rate signal until a certain condition is met.

47. (CURRENTLY AMENDED) A computer readable storage medium as defined in 46, wherein the certain condition is met when said at least one remaining portion of said fetal heart rate signal has a number of sample points below a pre-determined threshold number of sample points.

48. (CANCELLED)

49. (CURRENTLY AMENDED) A fetal monitoring system comprising:

a) a sensor for generating ~~receiving~~ a fetal heart rate signal indicative of a fetal heart rate, said fetal heart rate signal including a sequence of sample points;

b) an apparatus suitable for monitoring the condition of a fetus, said apparatus comprising:

i. an input coupled to said sensor for receiving said fetal heart rate signal ~~indicative of a fetal heart rate~~;

   ii. a feature detection module coupled to said input, said feature detection module implementing:

     (a) a first processing unit adapted for processing said <u>fetal</u> heart rate signal to generate a set of segments, each segment corresponding to a respective portion of said <u>fetal</u> heart rate signal identified as being enclosable in a respective bounded area commencing at a start sample point of said <u>fetal</u> heart rate signal and terminating at an end sample point of said <u>fetal</u> heart rate signal, the sample points between said start sample point and end sample point lying within said bounded area, wherein the bounded area for each segment has a respective length determined on a basis of at least one characteristic of the respective portion of said <u>fetal</u> heart rate signal;

     (b) a second processing unit adapted for processing said <u>fetal</u> heart rate signal together with said set of segments to:

       — identify a plurality of distinct sections of said <u>fetal</u> heart rate signal, ~~each section being associated with a respective heart rate feature~~; <u>and</u>

       — <u>associate sections in the plurality of distinct sections with respective labels, at least some of the labels conveying heart rate features;</u>

   iii. a post processing module coupled to said feature detection module, said post processing module being adapted for deriving information on the basis of the ~~heart rate features~~ <u>labels</u> associated with said sections of said <u>fetal</u> heart rate signal;

   iv. an output for releasing the information derived from the <u>labels</u> ~~heart rate features~~ associated with said sections of said <u>fetal</u> heart rate signal;

  c) an output unit coupled to the output for said apparatus, said output unit being suitable for displaying the information derived from the <u>labels</u> ~~heart rate features~~ associated with said sections of said <u>fetal</u> heart rate signal.

50. (CURRENTLY AMENDED) An apparatus for segmenting a <u>fetal</u> heart rate signal to identify heart rate feature events, said apparatus comprising:

  a) means for receiving a <u>fetal</u> heart rate signal including a sequence of sample points;

  b) means for processing said <u>fetal</u> heart rate signal to generate a set of segments, each segment corresponding to a respective portion of said <u>fetal</u> heart rate signal identified as being enclosable in a respective bounded area commencing at a start sample point of said

fetal heart rate signal and terminating at an end sample point of said fetal heart rate signal, the sample points between said start sample point and end sample point lying within said bounded area, wherein the bounded area for each segment has a respective length determined on a basis of at least one characteristic of the respective portion of said fetal heart rate signal;

c) means for processing said fetal heart rate signal together with said set of segments to identify a plurality of distinct sections of said fetal heart rate signal;

d) means for associate sections in the plurality of distinct sections with respective labels, at least some of the labels conveying heart rate features; ~~each section being associated with a respective heart rate feature;~~

e) means for releasing a signal indicative of said plurality of sections of said fetal heart rate signal.